DOCUMENT RESUME

ED 258 820 SE 045 816

AUTHOR White, Arthur L.; Berlin, Donna F.
TITLE An International Consortium for Concept Learning Research in Four Countries (U.S.A., Trinidad and Tobago, Costa Rica, and Mexico).
PUB DATE 85
NOTE 7p.; Paper presented at the Annual Meeting of the National Association for Research in Science Teaching (58th, French Lick Springs, IN, April 15-18, 1985).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Abstract Reasoning; Calculators; *Cognitive Development; Computer Simulation; *Concept Formation; *Consortia; Cooperative Programs; Educational Improvement; Elementary Secondary Education; International Cooperation; *International Educational Exchange; *International Programs; *Science Education; Technology
IDENTIFIERS Costa Rica; Mexico; *Science Education Research; Trinidad And Tobago

ABSTRACT

This report presents a rationale for development of an international perspective on the role of research in the improvement of science education in particular and education in general. Costa Rica, Trinidad and Tobago, Mexico and the United States are the participating countries. Topics discussed include: (1) goals and directions for science education research; (2) needs and resources for effective science education research; and (3) the role of a science education research consortium in the improvement of the research program in the country. The symposium will specifically focus on the use of technology to facilitate the transition of young children from concrete understanding of concepts to abstract thought. An aspect that is unique to the needs and resources of each country will be examined. The United States will focus on the influence of computer simulation activities on the development of pattern recognition and extension. Costa Rica will center on calculator activities' effect on numeration and place value understanding. Black and white computer simulations' effects on pattern recognition and extension will be explored in Trinidad and Tobago. Mexico intends to replicate the U.S. study with an emphasis on Spanish verbal components. (ML)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED258820

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
✓ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy

An International Consortium for Concept Learning Research in Four Countries (U.S.A., Trinidad and Tobago, Costa Rica, and Mexico)

by

Arthur L. White

and

Donna F. Berlin

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Arthur L. White
Donna F. Berlin
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper Presented at the Annual Meeting of the National Association for Research in Science Teaching (58th, French Lick Springs, April 15-18, 1985).

SE 045816

BEST COPY

ABSTRACT

An International Consortium
for Concept Learning Research in Four Countries
(U.S.A., Trinidad and Tobago, Costa Rica, and Mexico)

Research in education is very much influenced by the specific samples and conditions of the research. It becomes extremely important to have replication of research in order to identify those findings which have stability and consequently the generalizability needed to build a knowledge base. In order to establish a broad base it is valuable, and perhaps necessary, to have cooperative efforts in a variety of settings to test the hypotheses and the practical application of the theories.

The first level of cooperation at the university was between the main campus faculty and the branch campus faculty. This provided a broader base for sampling and a valuable perspective for the needs and adjustments for experimental procedures.

In addition, cooperative efforts in the form of an international consortium have been developed. The needs, resources, and cultural differences of the institutions and their representatives from Costa Rica, Trinidad and Tobago, and Mexico provide opportunities for:

A. replication to establish new generalizations or reaffirm previous ones,

B. expansion of the generalizations to a broader population,

C. identification of the differences in populations and the relevance of the generalizations,

D. extension of the generalization to other

BEST COPY

modes, and

E. clarification of the concept of transition as a part of cognitive development.

This symposium will provide the opportunity for an international perspective on the role of research in the improvement of science education in particular and education in general. The representatives of each of the countries (Costa Rica, Trinidad and Tobago, Mexico, and the United States) will discuss the following factors:

A. Goals and directions for science education research in the country;

B. Needs and resources for effective science education research in the country;

C. Role of a science education research consortium in the improvement of the research program in the country.

The current topic of research is the use of technology to facilitate the transition of young children from concrete understanding of concepts to abstract thought.

BEST COPY

Research in education is very much influenced by the specific samples and conditions of the research. It becomes extremely important to have replication of research in order to identify those findings which have stability and consequently the generalizability needed to build a knowledge base. In order to establish a broad base it is valuable, and perhaps necessary, to have cooperative efforts in a variety of settings to test the hypotheses and the practical application of the theories.

The first level of cooperation at the university was between the main campus faculty and the branch campus faculty. This provided a broader base for sampling and a valuable perspective for the needs and adjustments for experimental procedures.

In addition, cooperative efforts in the form of an international consortium have been developed. The needs, resources, and cultural differences of the institutions and their representatives from Costa Rica, Trinidad and Tobago, and Mexico provide opportunities for:

A. replication to establish new generalizations or reaffirm previous ones,

B. expansion of the generalizations to a broader population,

C. identification of the differences in populations and the relevance of the generalizations,

D. extension of the generalization to other modes, and

E. clarification of the concept of transition as a part of cognitive development.

BEST COPY

This symposium will provide the opportunity for an international perspective on the role of research in the improvement of science education in particular and education in general. The representatives of each of the countries (Costa Rica, Trinidad and Tobago, Mexico, and the United States) will discuss the following factors:

A. Goals and directions for science education research in the country;

B. Needs and resources for effective science education research in the country;

C. Role of a science education research consortium in the improvement of the research program in the country.

The current topic of focus for this research consortium is the use of technology as a means to facilitate the transition of young children from concrete understanding of concepts to abstract thought. The initial studies in this domain at The Ohio State University have focused on the influence of computer simulation of concrete activities on the understandings, skills, and processes gained by young children.

Each country has selected a different aspect of the problem depending upon the needs and resources of the country. In the United States, the focus is on the influence of concrete and computer simulation activities on the development of pattern recognition and extension. In Costa Rica, the focus is on the influence of concrete and calculator activities on numeration and place value understanding. In Trinidad and Tobago, the focus is on the influence of concrete and black-and-white

BEST COPY

computer simulations on pattern recognition and extension. The focus in Mexico is on the replication of the United States study with a special interest in the effect of verbal components in Spanish with the Mexican culture.

All of these studies will help to supply information to increase the generalizability and internal validity of the findings. The current topic of research is the use of technology to facilitate the transition of young children from concrete understanding of concepts to abstract thought.

BEST COPY